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Center for Sustainable Agricultural Systems

University of Nebraska–Lincoln

May-June, 1999 Newsletter

The Farmer and the Dean

It must be in the water. Yes, now that I think back on it, there must be something in the water of Virginia to produce such brilliantly original and crystal-clear visionaries as Joel Salatin and William McDonough. Very different people, coming from wholly different backgrounds, deducing and applying the same general principles to completely different endeavors. The land that produced Thomas Jefferson and Meriweather Lewis continues to give us innovation and direction for the future.

Salatin is widely known to graziers and holistic thinkers. He is a down-home, no nonsense farmer/philosopher with strong Christian roots. His special gift is creating and then linking disparate enterprises to achieve clearly defined ecological, economic, and family goals for the farm. I've heard him speak several times, and have read his books - *Pastured Poultry Profits*, *Salad Bar Beef*, and *You Can Farm* - rejoicing each time in his out-of-the-box insights and gracious manner of sharing.

McDonough, Dean of the School of Architecture at the University of Virginia, was unknown to me when I walked into his keynote address at a conference earlier this year. Tall and spare, where Salatin is compact and wiry. Erudite and worldly, where Salatin is plain-spoken and earthy. Anecdotes from Wal-Mart and Nike vs. pig-fishing and eggmobiles. But underneath it all, these two must have been born under the same star (or perhaps it was that Virginia water) because their message is the same:

a. *A healthy system is one that is designed to internalize flows*, and in so doing, to capture ecological and economic synergies while eliminating (not just reducing) adverse off-site impacts.

b. *If it doesn't make money, don't do it.* Entrepreneurship personified. Period.

c. *Just do it.* Both are "can-do" people, who *walk the walk*, as well as *talk the talk*. Both celebrate human creativity, in themselves and in others. Each has an impressive record of up-and-walking achievements, testifying to the real-world applicability of their other-worldly ideas.

d. *Love, respect, and honor are central.* Salatin is one of the very few speakers I've ever heard who unashamedly puts his family - and yours - front and center. He says that you can't farm sustainably if you don't grow the next generation of farmers and give them the skills and perspective to value their heritage. How very true, but how many of us conceptualize and then constructively enact it? McDonough's guiding principle is to design systems that "love the children - all the earth's children, all species, for all time, free from intergenerational tyranny." However, unlike many well known orators, his design prescription is more than sage words. He employs it as a powerful, intellectual screen, serving clients with a combined annual gross income of \$400 billion. Does a system that applies millions of pounds of toxic, carcinogenic, mutagenic, and/or teratogenic compounds to millions of hectares of farmland "love the children for all time?" Some systems generate more energy than they consume - via passive solar and other technologies. Others produce more oxygen than they use - with built-in greenhouse/aquatic systems to purify wastes and release oxygen as well as CO₂. Yet others are so well designed that they can release their effluent upstream from themselves - effluent that is now so clean that there is no risk of harming the occupants. These are examples of systems that "love all the children, all species, for all time."

e. *Humility in all things.* Brilliance without pretense. Genius bereft of guile. As someone who works in an academic environment, I find this alone worth the price of admission.

Imagine it - farsighted people, acting humbly and reverently, deriving universal design principles from systems as diverse as a family farm and a textile factory.

In a few, well-chosen, breathtakingly evocative words, McDonough said that "regulations are an indication of design failure." He noted that if regulations are needed so that we "kill each other less quickly," then we need to go back to first principles and rethink the system itself. This is exactly what Salatin has done. Deep change is needed - not tinkering and refinement to comply with regulations.

The sense of this vision is well captured in Steingraber's powerful metaphor from which the title of her book, *Living Downstream*, is drawn. She describes the perplexity of villagers on a hypothetical river who see an increasing number of drowning people floating by. The villagers become increasingly adept at rescuing these unfortunates, devising all manner of sophisticated technologies for retrieval and resuscitation. However, they are so busy saving the drowning victims that they don't have time to go upstream and see who is pushing them in.

In a very real sense, this is precisely what has happened to agriculture today. What an inordinate waste of human creativity and natural resources - quantifying allowable levels of biocide residue down to the nanogram level instead of pursuing the exhilaration of designing farming systems that don't need them in the first place. The real legacy of organic farming is not simply a means of producing healthy food, but as a design model for channelling natural processes to the service of humanity, based not on problem solving but on problem avoidance.

Roy Berg and Mick Price, then Dean and Associate Dean of the College of Agriculture and Forestry at the University of Alberta, wrote an article for the February 1992 issue of *Cattleman* magazine, an issue that is traditionally devoted to profiling innovative producer approaches to solving calving problems. They said:

"A visitor from outer space reading the February calving issue of *Cattlemen* for the past few years could be forgiven for thinking that pregnancy is a disease that breaks out seasonally in our cow herds and can be only be cured by an invasive procedure called 'calving'."

Berg and Price argued that many of the problems addressed by the producer-contributors were in fact caused by simply layering one linear technology upon another without addressing the root cause of the problem in the first place. For example, rather than accept that difficult calving was caused by a mistake in

- * **first generation technology** - intentionally choosing a bull that throws large calves, and breeding for late winter calving to boost fall weaning weights, producers tended to apply

- * **second generation technology** - an improved calf puller which produces an exhausted cow and a cold, weak, and listless calf, unable to stand and suck, calling forth

- * **third generation technologies** - calf heaters, medication to ward off stress-induced illness, colostrum warmers, and calf movers.

"Pretty soon, we've got technology piled on top of technology trying to solve problems that we wouldn't have if we had carefully examined the technology we were using in the first place" (Berg and Price, 1992). These respected cattlemen and academics then outlined the economic and logistical benefits of a system that mimics nature. Timing calving to coincide with the flush of spring growth instead of the deadly cold of late winter vests responsibility for a healthy calf directly in the cow - where it belongs - instead of compelling producer intervention with more technology. The intent of their design was to avoid the need for remedial technologies in the first place, just as McDonough's designs avoid the need for regressive regulations.

Another succinct gem from the pen of McDonough is "food=waste." Can there be a human on the planet who exemplifies this better than Salatin, with his use of pigs for *in-situ* composting of beef manure and chickens for sanitizing parasites on pasture? In McDonough's world, food=waste translates into two parallel but non-overlapping metabolisms - one of "technical" nutrients, as the parts of a TV or carpet, and the other of "biological" nutrients that are decomposable. So long as the two metabolisms are isolated from each other, the "nutrients" in each are infinitely recyclable. No waste is generated because, in his words, you eliminate the very concept of waste. Neat trick, eh?

So, I'm thinking that we should take the hard-won lessons so freely offered by these folks and create a new enterprise for the next Industrial Revolution. Why don't we bottle up

that water and spread the gift around to those of us who don't live in Virginia? Powerful principles, generalizable across the breadth of human enterprise, revealing designs that are universal and robust. So simple, yet so profound.

*Submitted by E. Ann Clark, Plant Agriculture, University of Guelph, Guelph, ON
CANADA (aclark@plant.uoguelph.ca)*

University Role in Biotechnology: Who Owns Genes and Diversity?

Third in a Series. There is growing debate about the emerging role of universities in research and applications of biotechnology. Current interest and investment in production and use of genetically modified organisms (GMOs) have sparked a revolution in university research laboratories and fields. Perhaps no single set of new techniques and potential technologies has caused such a substantial short-term shift in focus of people and resources in universities. We hope that encouraging debate within the university community and among our clients will help inform people of the issues and aid in charting a rational strategy for the future.

Ownership of Genetic Material

"Who owns nature? Scientists are ransacking the jungles and rain forests for tomorrow's miracle drugs," began the cover story of the November 30, 1998 international edition of *Time Magazine*. The article deals with potential cures for malaria and prevention of cancer, yet the same question has been raised about genetic resources for our major food crops. Since the rapid growth of plant patents began in Europe and the U.S., the question has come up: Who owns the original germplasm or sources - the raw materials needed for improving our crops?

Nebraska's five major crops come from the far corners of the globe: corn from Mexico, soybean from China, wheat and alfalfa from the Crimea and Mediterranean regions, and sorghum from Ethiopia. Our only native crop is sunflower. Some biotechnologists argue today that genetic variation can be created in the laboratory, and this minimizes the need for plant exploration or gene banks for the future. Practical plant breeders argue that genetic collections in storage and cultivars still to be discovered will continue to provide the basis for improved varieties and hybrids of today's crops as well as the new species important for food in the future. So ownership of these genetic stocks is vital, and we have an interest in keeping them available. The same is true in Scandinavia where most crops have distant centers of origin.

Different Natural Resources

Our major natural resource in the Midwest is fertile farmland. Our economic success is based on this resource that we exploit through efficient farming and ranching to produce food for ourselves and for export. The resource is "place bound" in the sense that it cannot be exported, although we do send thousands of tons of topsoil down the Missouri and Mississippi Rivers each year. The nature of our resource makes it difficult for us to

understand the needs of people in a tropical location where their major resource may be genetic materials that are of interest to the rest of the world. These genetic resources once discovered and exported are gone forever, and there is no continuing benefit to those who have lived with and protected those resources for centuries. The global industrial model based on possession and ownership, even protected by patents and law, ignores the local human dimension. The moral issue is: Should anyone own nature?

What is Being Done?

Plant patenting has become a major issue for the improvement of crops over the past three decades. Patents are obviously important to protect a large research investment in development of new crop varieties. Commercial success allows the scientific advances to be passed on to farmers, bringing varieties that are resistant to pests and pathogens or with superior nutritional value to reduce costs of production or increase the value of the farm product. Critics argue that patents have discouraged the exchange of genetic resources among plant breeders, making it more difficult to pool the collective knowledge and expertise in developing varieties that will benefit a wider range of farmers and consumers. The international research centers, current keepers of a large proportion of the world's genetic resources for major food crops, have recently adopted a policy of *patenting their collections to keep them available to plant breeders around the world* rather allowing them to be locked up. This is an innovative way to deal with the challenge of maintaining access to germplasm resources. The opposite approach is illustrated by the highly publicized 'terminator gene' technology that kills the embryo of a seed planted by the farmer, thus preventing replanting and locking in a purchase of new seed every season from the same company.

These are issues in the genetic improvement of crops that have no simple solutions. What is important is to add the social, ethical and moral dimensions to the debate and widen the discussion beyond immediate economic gains. Is genetic material a commodity that should be locked up for commercial exploitation, or is this a resource that belongs to all? Should that resource benefit the people in the place from which it comes? The debate continues...

Next Newsletter: How do we sustain food production?

Submitted by Charles Francis (CSAS director on professional development leave) and Geir Lieblein, NLH, Norway

CSAS Volume 9 Discusses Watersheds

Facing a Watershed: Managing Profitable and Sustainable Landscapes in the 21st Century is the ninth in the series, Extension and Education Materials for Sustainable Agriculture, published by the CSAS. The 261-page volume, edited by Heidi Carter,

Richard Olson and Charles Francis, contains materials from the North Central SARE Professional Development Program workshops held in summer 1998.

The watershed is a place within which a sustainable agriculture can take root. Sustainable agriculture is based upon a knowledge of place, of the particular soils, plants, climate, and people that comprise a farm and community and landscape of which the farm is a part. Without local knowledge, places erode--literally, in the movement of soil from fields to streams, and figuratively, in the decay of community, and the alienation of different groups of people.

Americans are increasingly transient, rarely living in one place long enough to come to know it or to care about it. Ian McHarg refers to a generation of "asphalt people" with no knowledge of natural systems and processes. Not everyone has accepted this loss of local knowledge and a sense of place.

Volume 9 contains many stories of people who have reconnected with their watersheds and in so doing strengthened their agriculture, environment, and communities. From their successes, failures, and hard-won lessons comes a tool kit for educating, facilitating, and organizing. Chapter contents of Volume 9 as well as information on other publications of the CSAS can be found at <http://www.ianr.unl.edu/ianr/csas/reports.htm>.

To order, send a check payable to the University of Nebraska for \$10.00 US (note it is for Volume 9) to: Center for Sustainable Agricultural Systems, U. Nebraska, PO Box 830949, Lincoln, NE 68583-0949. (Price includes s&h in U.S.; for air book rate to Canada, add \$5; air rate to other countries, check with the CSAS office - this applies to all volumes in the series). For questions, contact the CSAS office, 402-472-2056, csas003@unlvm.unl.edu.

SARE Appoints Paula Ford North Central PDP Coordinator

The North Central Region (NCR) Sustainable Agriculture Research and Education (SARE) program announces the appointment of Paula Ford as the new Professional Development Program (PDP) coordinator effective June 1, 1999.

Ford, who will be housed at Kansas State University, will help network educators, facilitate multi-state and regional educational programs, integrate SARE research results into educational programming, identify farmer and nonprofit leaders to teach agricultural educators, and collect and disseminate SARE educational materials on a region-wide basis.

The mission of the NCR PDP is to transfer sustainable agriculture information from Cooperative Extension, Natural Resources Conservation Service (NRCS) and other agricultural personnel to farmers and ranchers.

Policy Project Identifies Retention of Farms and Farmland as Top Priorities

Local working groups participating in the five-year Agriculture Policy Project of the Wallace Institute for Alternative Agriculture have listed their top agricultural concerns as the loss of farms and farmland, and the need for increased marketing opportunities. The first phase of the project, now in progress, consists of local farm policy roundtables in 12 communities around the country. The goal is to bring together farmers, local officials, business leaders, and others to identify critical food and agriculture-related challenges in their communities, and to develop and implement workable solutions.

The needs for policy change from all 12 local roundtables, several regional meetings, and a national meeting will be the starting point for the development of new local and national policy recommendations to be presented to the Administration and Congress. At the same time, the Agriculture Policy Project will fund local projects to implement the recommendations of the roundtables.

In addition to farmland preservation and marketing opportunities, other policy issues under discussion include effects of agriculture on air quality, reconnecting farming to communities, agricultural diversification, new farmers, inner city food access, and watershed impacts.

For more information, see <http://www.hawiaa.org/wagpol.html>.

Olson Heads to Kentucky

Many of you have come to know Richard Olson through his involvement in the SARE PDP workshops and the books (*Under the Blade, Exploring the Role of Diversity in Sustainable Agriculture*) that he co-edited while working on his PhD degree at UNL. Olson spent the past year as a postdoc on several projects, including organizing the 1998-99 CSAS seminar series on alternative farming systems and reintegrating agriculture and community, and teaching a new course he co-designed on urbanization of rural landscapes. In July he becomes Director of the new Sustainability and Environmental Studies (SENS) Program at Berea College. The SENS Program facilitates the integration of sustainability themes throughout the college curriculum, and promotes structural and functional changes that increase the sustainability of the college. As Director, Olson will serve as a resource person for faculty seeking to include sustainability issues in their teaching, provide faculty development opportunities, and develop linkages between the SENS Program and off-campus organizations that address sustainability issues. He will also advise students in the Sustainability Minor, teach several courses, and develop experiential learning opportunities for students. After July 12, his address will be Director; SENS Program, Berea College, Berea, KY 40404. We thank him for his service to CSAS, and wish him well in his new position.

Organic Grain Farming Workshops

The University of Nebraska Cooperative Extension, the Nebraska Sustainable Agriculture Society, and the Center for Rural Affairs will be holding organic grain farming workshops this summer. These workshops will look at the organic weed management, crop rotations, markets, and soil fertility practices of Nebraska's organic farmers. A representative of the Organic Crop Improvement Association will also be present to talk about the organic certification process. The workshops will take place on organic farms and several organic farmers will be present to answer questions. Three workshops have been scheduled for the following dates and locations: August 9th near Randolph, August 14th near Aurora, and August 17th near Clarkson. For more information contact Cris Carusi with the Nebraska Sustainable Agriculture Society, 402-471-0817, crisc@navix.net.

Two Alternative Agriculture Conferences in Midwest

Want to know about producing and marketing alternative and value-added agricultural products? Two events this year can help.

Alternative Ag Expo: Diverse Systems that Work will be held in Sioux City, Iowa on August 24. Speakers include Joel Salatin of Virginia, Dick Thompson of Iowa, and Jim Gerrish of Missouri. Contact the CSAS for details.

The NCR SARE program is organizing *Developing Agricultural Marketing Skills for the New Millennium*, to be held November 19-20 in Lincoln, Nebraska. More details on this event will be in the July-August CSAS Newsletter.

Resources

Amaranth Production Manual for the Central United States: a guide to growing and marketing. \$6. High Plains Ag Lab, 3257 Rd. 109, Sidney, NE 69162, 308-254-3918, phrc031@unlvm.unl.edu. Make checks out to University of Nebraska.

Sharing the Harvest: A Guide to Community-Supported Agriculture. \$24.95. The product of a partnership with Northeast SARE and Chelsea Green Publishing, this book offers case histories, pointers, models, and strategies for starting and running a CSA. Order from Chelsea Green, 800-639-4099.

In a new campaign titled "Farming for Profit, Stewardship & Community," USDA is reaching out to producers and USDA employees by providing 'tip sheets' on top resources available on major topics: soil quality, pest prevention, organic production, livestock costs, weed management, crop diversification, planning, networking, and agroforestry. This campaign is part of USDA's efforts to implement the recommendations of the National Commission on Small Farms. Thousands of copies of the tip sheets will be distributed across the country, through USDA field offices and local organizations. For copies of the set of 10 tip sheets, contact Valerie Berton at 301- 405-3186, vberton@wam.umd.edu. The tip sheets are also online at

<http://www.sare.org/san/tipsheet/index.htm>. For more educational resources, see <http://www.sare.org/san/htdocs/dev/education.html>.

Other web sites of interest:

Union of Concerned Scientists - deals with biotechnology in agriculture, industrial and sustainable agriculture, <http://www.ucsusa.org/agriculture/>.

Whole Farm Planning - covers systems management for farmers and those who work with farmers, <http://www.misa.umn.edu/~mnproj/wfp/index.htm>.

Women In Agriculture Network - learn about the organization, read its newsletters, join a listserv, and more, <http://www.wia.usda.gov/>.

Organic Consumer Association - provides overview of OCA's programs, addresses food safety issues, and has calendar of events, book reviews and resources on where to buy organic products, <http://www.organicconsumers.org>.

Food Quality Protection Act (FQPA) of 1996 - EPA provides considerable information on this legislation, <http://www.epa.gov/oppfead1/fqpa/>.

International Food Information Council - read about the many issues relating to food nutrition and safety, including pesticide residues, labeling, and biotechnology, at <http://ifinfo.health.org/>.

Planting Your Farm's Future - series of informational leaflets on sustainable farming topics written by ATTRA specialists, <http://www.attra.org/attra-pub/leaflets/index.html>.

Coming Events

Contact CSAS office for more information.

1999

July 10 - Field Day at The Grain Place - Farmers, Seeds and Genetics, Marquette, NE

July 19-21 - Nebraska Water Tour - Opportunities and Alternatives in Water and Agriculture, Northeast and North Central Nebraska

Aug. 7 - Specialty Crops Field Day, Lincoln, NE

Aug. 8-11 - Soil and Water Conservation Society Annual Conference, Biloxi, MS

Aug. 9-10 - Amaranth Institute 1999 Meeting, Omaha, NE

Aug. 9-13 - Nebraska Forestry Shortcourse, Chadron, NE

Aug. 9/14/17 - Organic Grain Farming Workshops, Randolph/Aurora/Clarkson, NE

Aug. 24 - Alternative Ag Expo: Diverse Systems that Work, South Sioux City, NE

Oct. 12-15 - Second National Small Farm Conference: Building Partnerships for the 21st Century, St. Louis, MO

Oct. 20-23 - North American Chapter Association for Farming Systems Research and Extension (AFSR/E) Biennial Meeting - Sustaining Agriculture in the 21st Century: Thinking "Outside the Box," Guelph, Ontario, CA, (abstracts due Apr. 1),
<http://www.oac.uoguelph.ca/FSR/>

Nov. 19-20 - Developing Agricultural Marketing Skills for the New Millennium, Lincoln, NE

2000

Jan. 7-8 - Great Plains Regional Vegetable Conference, St. Joseph, MO

For additional events, see:

http://www.sare.org/wreg/view_notice_adm.pl

<http://www.agnic.org/mtg/>

Did You Know?

Did you wonder whatever happened to the Fund for Rural America center proposals? Only one was funded, and UNL is one of the partners. The grant creates the national Center for Crop Diversification. Other institutions involved are U. of Missouri (primary award), Purdue U., Iowa State U., Colorado State U., and Oregon State U.

An agreement announced 4/6/99 between The Hain Food Group, Inc. and Heinz U.S.A. will allow Hain to market the Earth's Best® line of organic baby food products directly to U.S. retail grocery customers. Earth's Best® was the first 100% organic baby food available nationally and remains the leading - and only - full-line organic brand in North America.

On 4/13/99 Archer Daniels Midland Co. issued a statement to the media saying: "ADM supports the position of the Corn Refiners Association and National Grain and Feed Association in regard to transgenic corn in that we will not participate in the commerce of the varieties that are not approved by the European Union. If and when the varieties are approved by the European Union, we will participate in the marketing of those grains."

According to a new report on the pace of corporate concentration within the "life industry" issued by the Rural Advancement Foundation International (RAFI), many of the world's largest chemical corporations are changing from industrial chemicals to agribusiness, pharmaceuticals and food. Examples include: since 1996, Monsanto has spent over US\$8 billion acquiring seed and agricultural biotechnology companies; in December 1998, Hoechst and Rhone-Poulenc merged to form Aventis - "the world's biggest life science company," with combined sales of US\$20 billion per year; the 1997 revenues of Nestle, the world's largest food and beverage corporation, surpassed the entire commercial seed and agrochemical industries; 40% of U.S. vegetable seeds come from a single source, and just four companies control 69% of the North American seed corn market. The report, "The Gene Giants: Master of the Universe?" is online at <http://www.rafi.org/communique/19992.html>.

On 4/27/99 several environmental and public interest groups quit a 50-member advisory panel on food safety. In their letter to EPA (see <http://www.nrdc.org/nrdcpro/petit/pestlet.html>) the groups said they were resigning because the agency was unwilling "to make hard choices" needed to take the most dangerous pesticides out of service even though they pose a threat to children. Last year the Environmental Working Group withdrew from the advisory group in protest.

This document is online at:

<http://www.ianr.unl.edu/ianr/csas/newsletr/sepoct99.htm>